

**Report for the  
year ended  
31<sup>st</sup> December 2002**

**MEDICAL BUREAU OF ROAD SAFETY  
DEPARTMENT OF FORENSIC MEDICINE  
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**MEDICAL BUREAU OF ROAD SAFETY  
DEPARTMENT OF FORENSIC MEDICINE  
UNIVERSITY COLLEGE DUBLIN  
ANNUAL REPORT  
2002**

**ESTABLISHMENT AND FUNCTIONS OF THE BUREAU**

The responsibility for chemical testing of intoxicants in driving in Ireland rests with the Medical Bureau of Road Safety, which is a corporate body established in November 1968 by the Minister for Local Government under Part V of the Road Traffic Act, 1968. The Minister's title was altered to Minister for the Environment & Local Government 22<sup>nd</sup> July 1997. In June 2002 the Medical Bureau of Road Safety came under the aegis of the Minister for Transport following the transfer of Departmental Administration and Ministerial Functions Order 2002.

The functions of the Bureau are laid down in the Road Traffic Acts 1968 – 1994 and their regulations and they include:

- ◆ The receipt and analysis of specimens of blood and urine forwarded to the Bureau.
- ◆ The issue of certificates of analysis.
- ◆ The provision of equipment for the taking or provision of specimens of blood and urine.
- ◆ Approval, supply and testing of equipment or apparatus for indicating the presence of alcohol in the breath.
- ◆ Approval, supply and testing of equipment or apparatus for determining the concentration of alcohol in the breath.

- ◆ Research on drinking and drugs in relation to driving, including the methods of determining the amount of alcohol or drugs in a person's body and the epidemiology of driving under the influence of intoxicants.

The Bureau derives its finances from an Annual Grant out of the Vote for the Department of Transport. The Board which comprises of five members (including the Director) are appointed by the Minister for Transport. The current Board members are Professor Bernadette Herity (Chairman), Professor Denis A. Cusack (Director), Ms. Hilary Dalton, Mr. Brendan Gogarty and Dr. Fenton Howell.

The Medical Bureau of Road Safety utilises the premises and staff provided under an agreement with University College Dublin, Department of Forensic Medicine, Earlsfort Terrace, Dublin 2. The Bureau currently employs one Chief Analyst, eight Analysts, one Senior Technician, one Senior Laboratory Attendant, one Administrative Officer and three Administrative staff on a permanent basis. The Analysts have primary degrees and most have post graduate qualifications. The Director is responsible for the day to day management of the Medical Bureau of Road Safety.

## **ACTIVITIES OF THE MEDICAL BUREAU OF ROAD SAFETY**

In 2002 a total of 12,668 blood, urine and breath specimens were analysed for alcohol concentration. This represents an overall increase of 1.3% on the total number of specimens analysed during 2001. Chart 1 shows the breakdown of all blood, urine and breath specimens analysed during 2002. 388 were analysed for the presence of drugs and this represents an increase of 196% on 2001.

The activities of the Medical Bureau of Road Safety for this report have been classified into the following five main programmes:

- 1. Blood and Urine Alcohol Analysis**
- 2. Breath Alcohol Analysis**
- 3. Blood and Urine Drug Analysis**
- 4. Research –Driving under the Influence of a Drug (DUID) Survey**
- 5. Professional Expert Services and Court Attendance**

The breakdown is as follows:

### **1. Blood and Urine Alcohol Analysis**

A total of 3,720 blood and urine specimens were received for analysis during 2002. Analyses was carried out and certificates were issued in 3,675 of these cases. In 45 cases certificates were not issued either because of some defect in the specimen or in the documentation accompanying it. The number of blood and urine specimens received for 2002 shows a decrease of 1,160 on the number received for 2001, this is due to the implementation and extension of the Evidential Breath Testing (EBT) programme. This represents a decrease of 23.8% on 2001 and 43.4% decrease on 2000.

### ***1.1 Number of Specimens Provided in Hospitals***

In 2002 there were 235 specimens provided in hospitals, this represents an increase of 8.5% on 2001. 60.9% of these had alcohol concentrations in excess of 150mg/100ml blood or 200mg/100ml urine while 31.1% were in excess of 200 mg/100ml blood or 267mg/100 ml urine.

### ***1.2 Analysis of Time***

Of the total number of blood and urine specimens received 81% were provided between the hours of 9.00 p.m. and 6.00 a.m., 12% between 4.00 p.m. and 9.00 p.m., and the remaining 7% between 6.00 a.m. and 4.00 p.m. This follows the same pattern as 2001 and 2000.

### ***1.3 Mean Alcohol Levels in Blood & Urine Specimens***

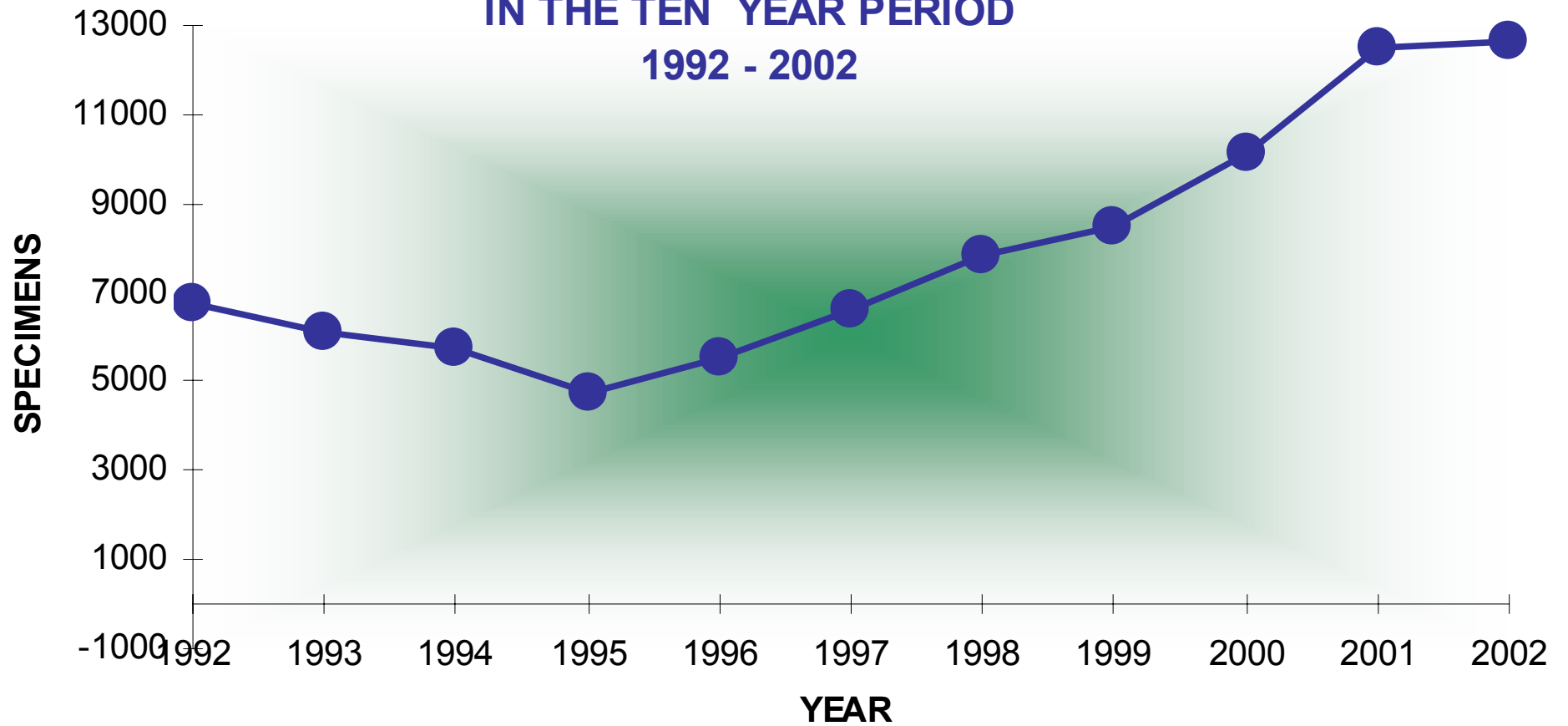
The mean alcohol level in blood was 174mg/100ml.

The mean alcohol level in urine was 216mg/100ml.

### ***1.4 Alcohol Levels in Blood & Urine Specimens***

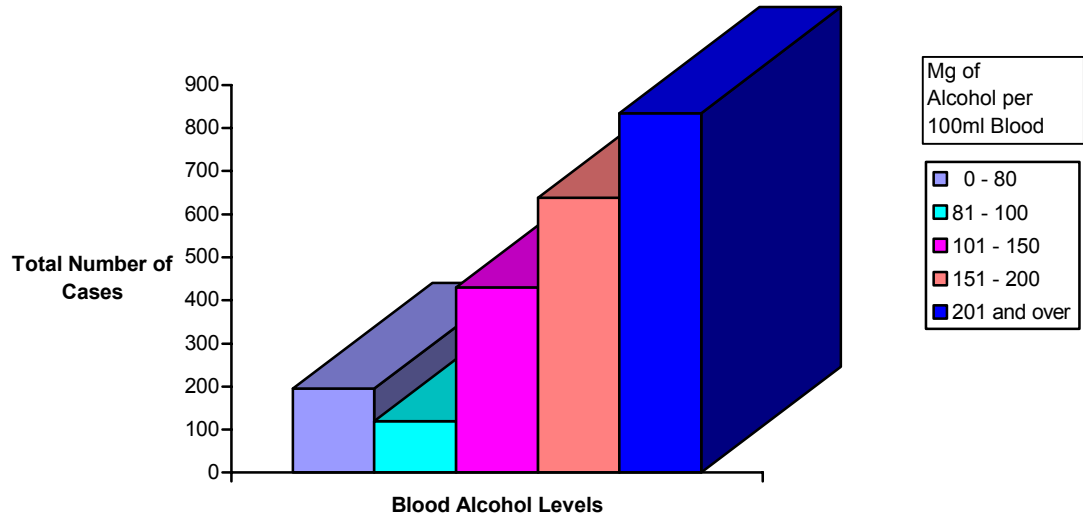
Table I and II to this report give a breakdown of alcohol levels encountered in blood and urine specimens received during 2002. Tables III and IV compare the levels of blood and urine with previous years. Charts 2 and 3 correspond to Tables I and II and charts 4 and 5 correspond to Tables III and IV respectively.

**Chart 1**  
**TOTAL SPECIMENS ANALYSED BY M.B.R.S.**  
**IN THE TEN YEAR PERIOD**  
**1992 - 2002**



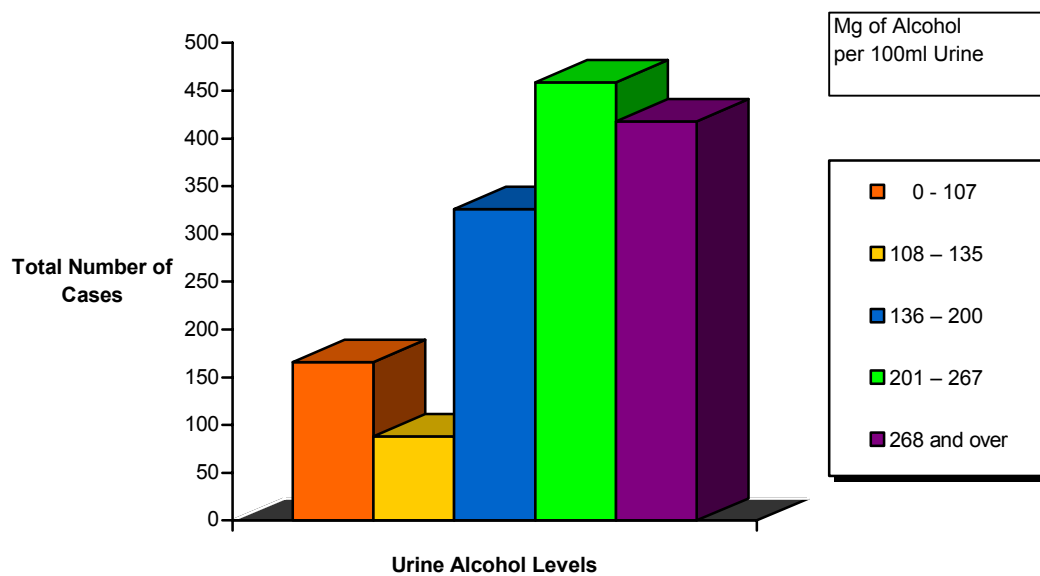
# **CERTIFIED ALCOHOL CONTENT OF BLOOD SPECIMENS RECEIVED IN 2002**

**Chart 2**



# **CERTIFIED ALCOHOL CONTENT OF URINE SPECIMENS RECEIVED IN 2002**

**Chart 3**





**TABLE I****CERTIFIED ALCOHOL CONTENT OF BLOOD SPECIMENS RECEIVED IN 2002**

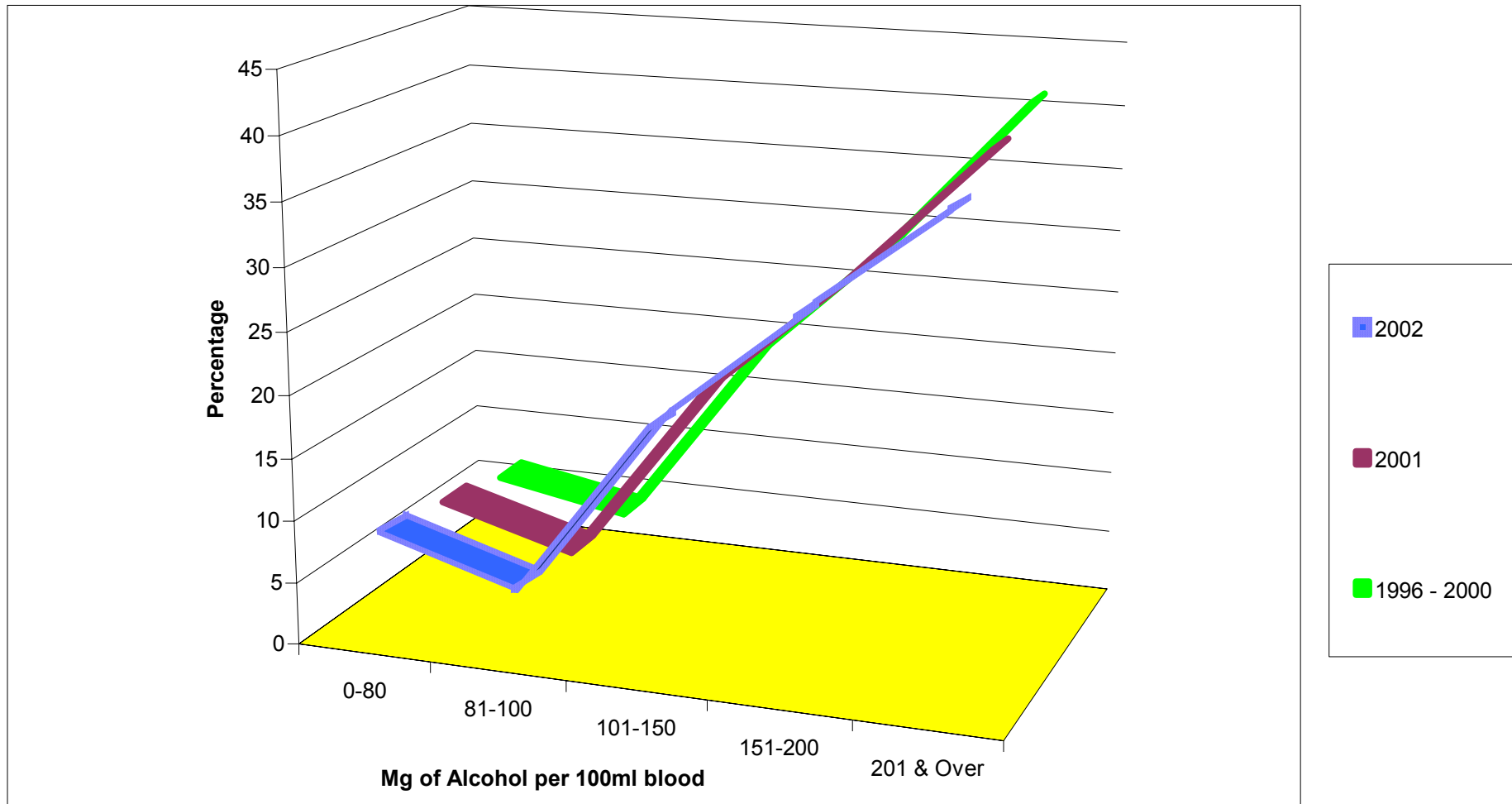
<b>Mg. of alcohol per 100ml of blood</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>	<b>TOTAL</b>
<b>0 – 80</b>	<b>50</b>	<b>47</b>	<b>55</b>	<b>43</b>	<b>195</b>
<b>LEGAL LIMIT</b>					
<b>81 – 100</b>	<b>32</b>	<b>36</b>	<b>22</b>	<b>30</b>	<b>120</b>
<b>101 – 150</b>	<b>100</b>	<b>112</b>	<b>106</b>	<b>112</b>	<b>430</b>
<b>151 – 200</b>	<b>142</b>	<b>170</b>	<b>158</b>	<b>168</b>	<b>638</b>
<b>201 &amp; Over</b>	<b>203</b>	<b>214</b>	<b>218</b>	<b>200</b>	<b>835</b>
	<b>527</b>	<b>579</b>	<b>559</b>	<b>553</b>	<b>2,218</b>

**TABLE II****CERTIFIED ALCOHOL CONTENT OF URINE SPECIMENS RECEIVED IN 2002**

<b>Mg. of alcohol per 100ml of urine</b>	<b>First Quarter</b>	<b>Second Quarter</b>	<b>Third Quarter</b>	<b>Fourth Quarter</b>	<b>TOTAL</b>
<b>0 – 107</b>	<b>47</b>	<b>41</b>	<b>41</b>	<b>37</b>	<b>166</b>
<b>LEGAL LIMIT</b>					
<b>108 – 135</b>	<b>25</b>	<b>17</b>	<b>21</b>	<b>25</b>	<b>88</b>
<b>136 – 200</b>	<b>64</b>	<b>90</b>	<b>87</b>	<b>85</b>	<b>326</b>
<b>201 – 267</b>	<b>97</b>	<b>145</b>	<b>107</b>	<b>110</b>	<b>459</b>
<b>268 &amp; Over</b>	<b>99</b>	<b>122</b>	<b>101</b>	<b>96</b>	<b>418</b>
	<b>332</b>	<b>415</b>	<b>357</b>	<b>353</b>	<b>1,457</b>

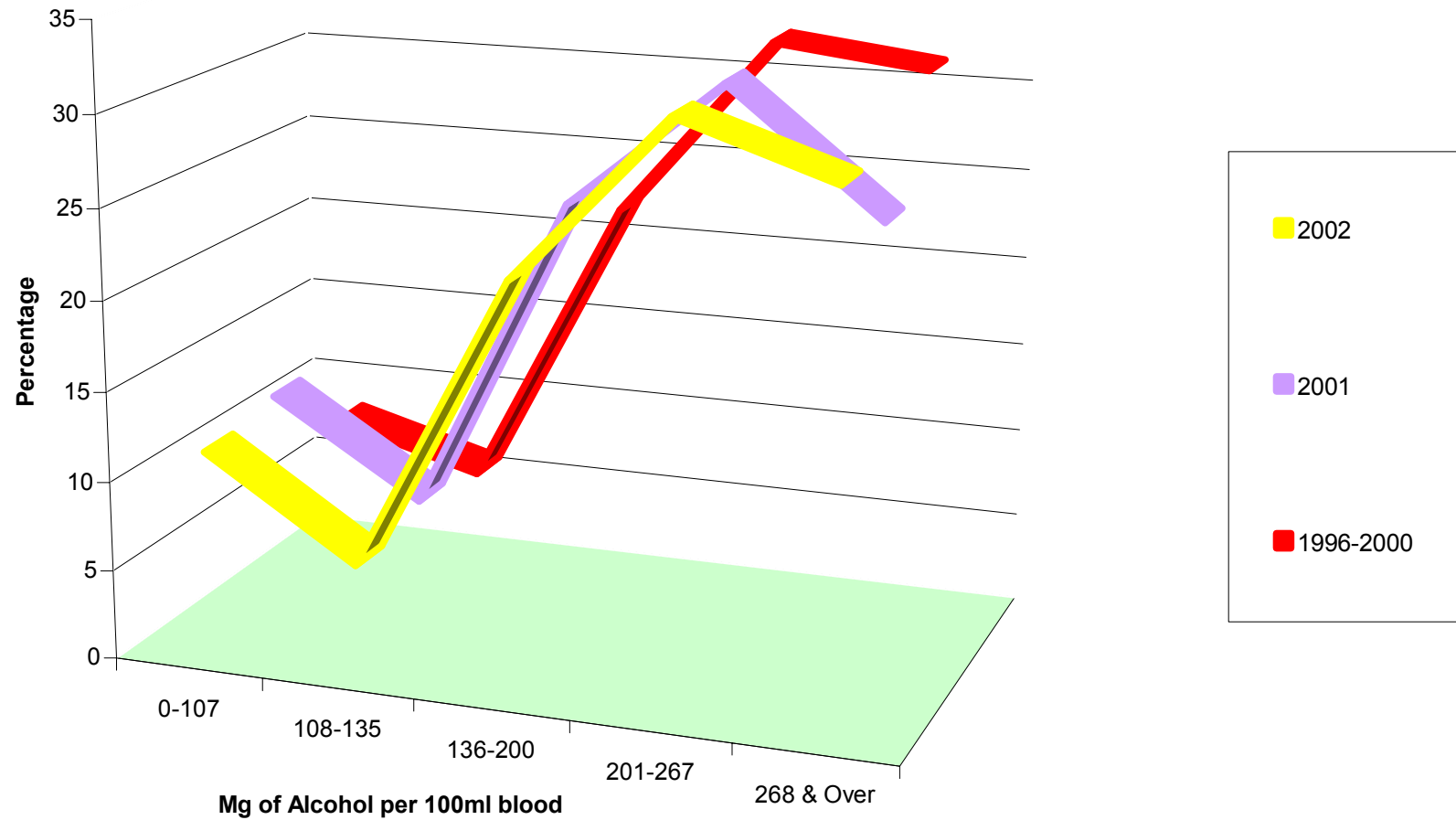
## BLOOD ALCOHOL LEVELS WITH PREVIOUS YEARS

CHART 4



## URINE ALCOHOL LEVELS WITH PREVIOUS YEARS

CHART 5



**TABLE III**

**BLOOD ALCOHOL LEVEL – COMPARISON WITH PREVIOUS YEARS**

<b>Mg. of alcohol per 100ml of blood</b>	<b>2002</b>		<b>2001</b>		<b>5 Year Period 1996 – 2000</b>	
	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>
<b>0 – 80</b>	<b>195</b>	<b>8.8</b>	<b>232</b>	<b>7.7</b>	<b>1,352</b>	<b>6.4</b>
<b>LEGAL LIMIT</b>						
<b>81 – 100</b>	<b>120</b>	<b>5.4</b>	<b>142</b>	<b>4.7</b>	<b>932</b>	<b>4.4</b>
<b>101 – 150</b>	<b>430</b>	<b>19.4</b>	<b>573</b>	<b>19.1</b>	<b>4,010</b>	<b>18.9</b>
<b>151 – 200</b>	<b>638</b>	<b>28.8</b>	<b>864</b>	<b>28.8</b>	<b>6,159</b>	<b>29.1</b>
<b>201 &amp; Over</b>	<b>835</b>	<b>37.6</b>	<b>1,193</b>	<b>39.7</b>	<b>8,710</b>	<b>41.2</b>

**TABLE IV**

**URINE ALCOHOL LEVEL – COMPARISON WITH PREVIOUS YEARS**

<b>Mg. of alcohol per 100ml of urine</b>	<b>2002</b>		<b>2001</b>		<b>5 Year Period 1996 – 2000</b>	
	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>	<b>No.</b>	<b>%</b>
<b>0 – 107</b>	<b>166</b>	<b>11.4</b>	<b>221</b>	<b>12.1</b>	<b>1,116</b>	<b>8.2</b>
<b>LEGAL LIMIT</b>						
<b>108 – 135</b>	<b>88</b>	<b>6.0</b>	<b>127</b>	<b>6.9</b>	<b>804</b>	<b>5.9</b>
<b>136 – 200</b>	<b>326</b>	<b>22.4</b>	<b>448</b>	<b>24.5</b>	<b>3,009</b>	<b>22.3</b>
<b>201 – 267</b>	<b>459</b>	<b>31.5</b>	<b>579</b>	<b>31.6</b>	<b>4,363</b>	<b>32.3</b>
<b>268 &amp; Over</b>	<b>418</b>	<b>28.7</b>	<b>456</b>	<b>24.9</b>	<b>4,230</b>	<b>31.3</b>

## **2. Breath Alcohol Analysis**

In 2002 a total of 8,948 breath specimens were taken in Garda Stations, this is an increase of 17% on 2001. 7,770 of the specimens were certified; 81% were over the legal limit while 31% were over twice the legal limit. Of the total number of breath tests registered, 1,178 tests did not result in a statement under Section 17 of the Road Traffic Act being provided. The mean alcohol level in breath was 57µg/100ml.

### **2.1 *Installation of Instruments***

During 2002 the Medical Bureau of Road Safety installed a further twenty Evidential Breath Testing (EBT) instruments into Garda stations nationwide. This was in accordance with the implementation of the Government's Strategy for Road Safety of sixty instruments in operation by the end of 2002. The twenty instruments were installed in the second half of 2002.

The Garda authorities advised the Medical Bureau of Road Safety of the proposed location of the instruments, and Bureau scientific personnel reviewed the stations selected to confirm their suitability.

The instruments were installed when the stations were notified to the Medical Bureau of Road Safety as having been prepared for an EBT instrument. During 2002 all instruments installed and commissioned in Garda stations were intoxilyzer 6000IRL instruments.

### **2.2 *Testing & Visits to Garda Stations***

Bureau Scientists visited and tested each instrument that had been previously installed in Garda stations, on at least two occasions during 2002. Bureau scientists have made in excess of two hundred visits to EBT instrument locations throughout Ireland

in the year. These visits covered the room inspection, installation, testing, demonstrations and training by Bureau scientists.

### **2.3            *Evidential Breath Testing Training***

The two-day EBT training course devised to train Garda Operators and Supervisors continued throughout 2002. The training courses were conducted by a Bureau scientist and a member of the Garda Siochana in-service training school at Harcourt Square. During 2002, 421 operators and 76 supervisors were trained for the Intoxilyzer 6000IRL instrument. Separate training courses were provided for 12 operators who trained for the INTOXIMETER EC/IR at relevant Garda stations. During 2002 the Bureau also provided an EBT information seminar for State Prosecution Solicitors.

### **2.4            *Analysis of Breath Specimens***

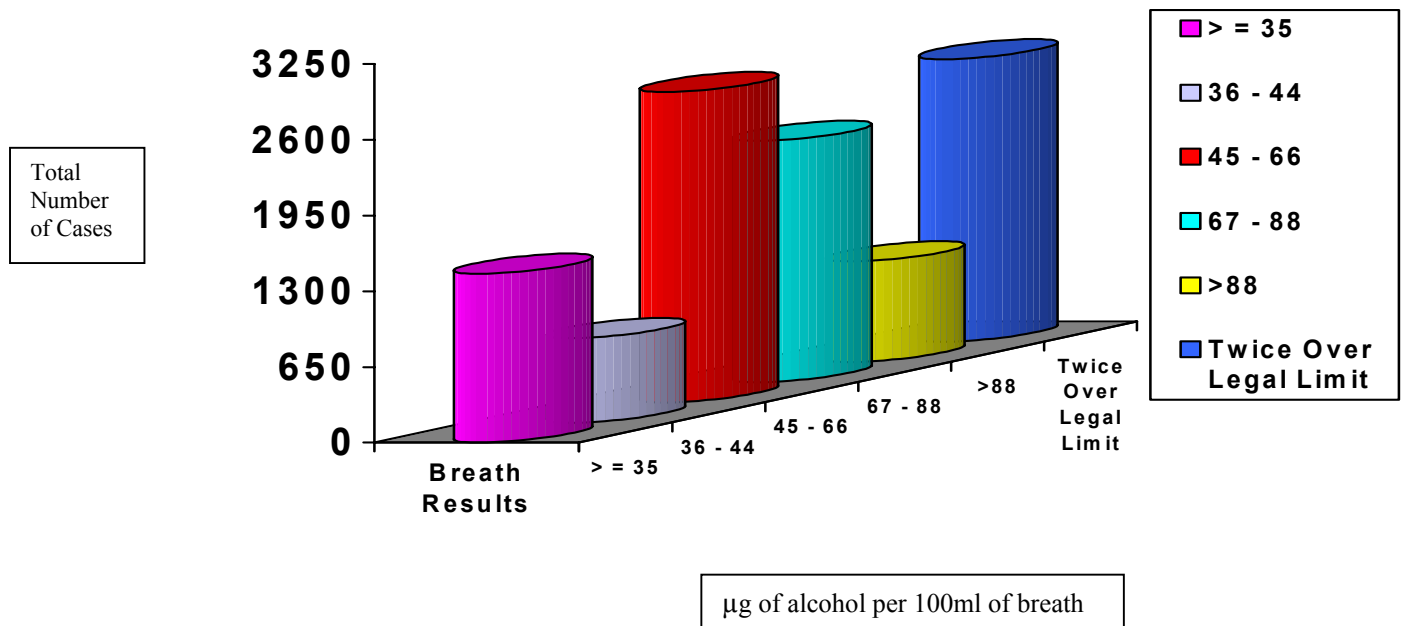
Chart 6 and table V provides a breakdown of alcohol levels measured in breath during 2002. Table VI compares the levels of alcohol in breath specimens found in 2002 with levels found in 2001.

TABLE V

## CERTIFIED ALCOHOL CONTENT OF BREATH SPECIMENS RECEIVED IN 2002

$\mu\text{g}$ of alcohol per 100ml of breath	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	TOTAL
0 – 35	352	349	327	421	1449
LEGAL LIMIT					
36 – 44	178	195	159	194	726
45 – 66	620	672	667	703	2,662
67 – 88	476	567	504	523	2,070
88 & Over	199	240	209	215	863
	1,825	2,023	1,866	2,056	7,770

Chart 6

Certified Alcohol Content of Breath Specimens during 2002

**TABLE VI**  
**ALCOHOL BREATH LEVEL – COMPARISON WITH PREVIOUS YEARS**

µg of alcohol per 100ml of breath	2002		2001	
	No.	%	No.	%
0 - 35	1,449	18.7	1,185	18.1
36 – 44	726	9.3	580	8.9
45 – 66	2,662	34.3	2,263	34.7
67 – 88	2,070	26.6	1,781	27.3
>88	863	11.1	718	11.0
<b>Total Certified</b>	<b>7,770</b>		<b>6,527</b>	
<b>Failures/Refusals</b>	<b>1,178</b>	<b>13.2</b>	<b>1,096</b>	<b>14.4</b>
<b>Overall Total</b>	<b>8,948</b>		<b>7,623</b>	

**TABLE VII**  
**ALCOHOL LEVELS BLOOD, URINE & BREATH SPECIMENS**  
**COMPARISON WITH PREVIOUS YEARS**

Alcohol Content			2002		2001		5 year period 1996 - 2000	
BLOOD mg/100ml	URINE mg/100ml	BREATH µg/100ml	No.	%	No.	%	No.	%
0 – 80	0 – 107	0 – 35	1,810	15.8	1,638	14.4	3,016	8.0
LEGAL LIMIT								
81-100	108 – 135	36 – 44	934	8.2	849	7.5	2,014	5.3
101 – 150	136 – 200	45 – 66	3,419	29.9	3,284	28.9	8,041	21.3
151 – 200	201 – 267	67 – 88	3,166	27.7	3,224	28.4	11,383	30.2
201 and upwards	268 and upwards	88 and upwards	2,116	18.5	2,367	20.8	13,306	35.2



Table VII shows the comparison between 2002 and 2001 for blood, urine and breath specimens received for analysis. This is the second year that a comparison can be made in the area of Evidential Breath Testing since its introduction in late 1999.

### **3. Blood and Urine Drug Analysis**

The Medical Bureau of Road Safety continued analysis of specimens for the presence of seven different drugs or drug classes using an immunoassay technique (ELISA).

There were 388 specimens tested for the presence of a drug or drugs. This includes all the specimens received which were under the legal limit for alcohol and 20 specimens where the alcohol level was over the legal limit and drug analysis was requested by Gardai.

There also were 4 specimens where alcohol analysis had been carried out by an evidential breath alcohol test and drug analysis was requested by Gardai.

233 specimens tested positive (60% of specimens analysed) and 155 specimens were found to be negative for the presence of a drug or drugs.

#### ***3.1 Confirmation from the State Laboratory***

Specimens testing positive were forwarded to the State Laboratory for confirmatory analysis using Gas Chromatography /Mass Spectrometry or Liquid Chromatography / Mass Spectrometry.

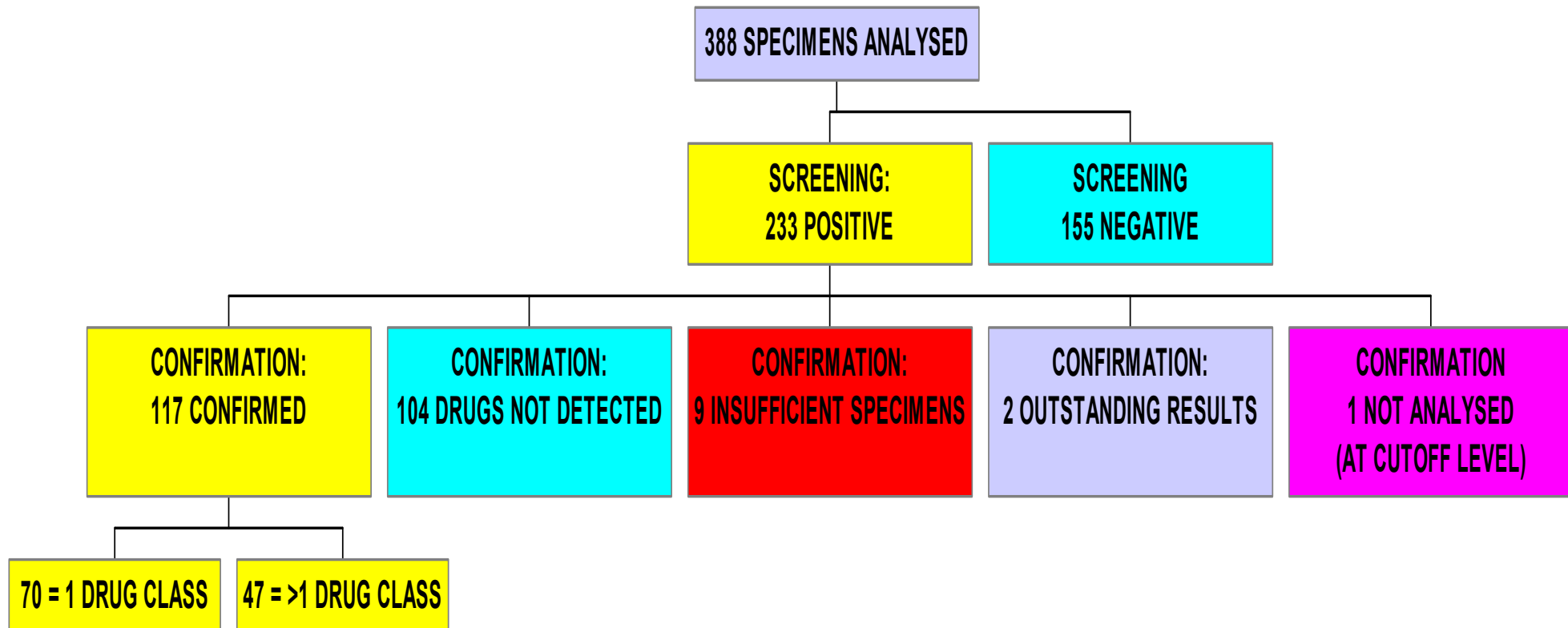
117 specimens were confirmed positive (50% of specimens sent to State Laboratory and 30% of total specimens analysed for the presence of drugs), 104 were not confirmed (45% of specimens sent to State Laboratory), 9 specimens were insufficient

for complete analysis and 2 results are still awaited. One specimen which screened at cutoff level was not analysed by State Laboratory.

Chart 7 provides a summary of drug analysis for 2002.

**CHART 7**

**SUMMARY OF DRUG ANALYSIS 2002**



#### **4. Research - Driving under the Influence of a Drug (DUID) Survey**

The analysis of 2000 specimens for a national DUID survey which commenced in late 1999 was completed in 2002 in the Medical Bureau of Road Safety. A report of findings was presented in August 2002 at the T2002 16<sup>th</sup> International Conference on Alcohol, Drugs and Traffic Safety in Montreal, Canada and published in the proceedings of the Conference, Volume 2, pages 487 – 492. Further statistical analysis of the data is being undertaken and the report is scheduled for publication towards the end of 2003.

#### **5. Professional Expert Services and Court Attendance**

The total number of occasions that different members of Bureau staff had to attend court cases during the year was twenty-four, of which eleven attendances related to blood and urine alcohol analysis. Thirteen attendances were legal challenges in relation to Evidential Breath Testing, three of which related to several cases.

The Bureau continues to provide a significant and independent professional expert support by way of information and preparation of evidence for both Defense and Prosecution parties and thereby to assist the courts in the administration of justice. The number of queries and requests for information from parties in criminal proceedings continued throughout 2002 and was comparable to the demand in 2001.

### **MEMBERSHIP OF COMMITTEES RELATING TO ROAD SAFETY**

The Bureau continued during 2002 to be one of the active participating agencies in the workings of the High Level Group on Road Safety. The Director and Chief Analyst are both members of the group and were in attendance at five meetings held during 2002. The dates of these meetings were the 6<sup>th</sup> February, 23<sup>rd</sup> April, 11<sup>th</sup> June, 5<sup>th</sup> November and 2nd December 2002.

### **CONFERENCES, COURSES AND MEETINGS ATTENDED BY STAFF**

#### **During 2002:**

1. The Senior Laboratory Attendant attended his second year Medical Physics and Physiology Measurement Course at DIT, Kevin Street from January to June 2002.
2. Two Analysts attended an Introduction to Databases – Access course for twelve weeks, Jan – April 2002 at UCD, Belfield, Dublin.
3. One Executive Assistant attended an Excel Course in the Irish Times, Dublin on the 7<sup>th</sup> & 8<sup>th</sup> January 2002.
4. One Senior Analyst attended an Intoximeter User Group meeting in Birmingham on the 20<sup>th</sup> and 21<sup>st</sup> February 2002.
5. The Administrative Officer and one Executive Assistant attended an Access Course in UCD, Belfield, Dublin on 4<sup>th</sup> and 5<sup>th</sup> February 2002.

6. The Administrative Officer and the Chief Analyst attended Quality Customer Care Seminar in the Dept of Environment & Local Government on the 8<sup>th</sup> of March 2002.
7. The Senior Executive Assistant and one Executive Assistants attended an Access Course in UCD, Belfield, Dublin on 15<sup>th</sup> and 16<sup>th</sup> April 2002.
8. The Administrative Officer attended the 31<sup>st</sup> Conference of Irish University Administrators in Trinity College, Dublin on March 26<sup>th</sup> – 28<sup>th</sup> 2002.
9. The Principal Analyst and one Analyst attended an Uncertainty of Measurement Course in Enterprise Ireland, Dublin on 16<sup>th</sup> April 2002.
10. Three Analysts attended a Courtroom Skills Training Course in Dublin on 27<sup>th</sup> & 28<sup>th</sup> May 2002.
11. The Principal Analyst, one Senior Analyst and one Analyst attended a BOC Gas Safety Seminar in the Keadeen Hotel, Kildare on 5<sup>th</sup> June 2002.
12. The Director & Chief Analyst attended the 16<sup>th</sup> International Conference on Alcohol, Drugs and Traffic Safety in Montreal, Canada from the 4<sup>th</sup> – 9<sup>th</sup> August 2002.
13. One Analyst attended the International Association of Forensic Toxicologists Conference in Paris, France on 26<sup>th</sup> – 30<sup>th</sup> August 2002.

14. The Director attended the 16<sup>th</sup> Meeting of International Association of Forensic Sciences in Montpellier, France on 2<sup>nd</sup> – 7<sup>th</sup> September 2002.
15. The Administrative Officer attended Desktop File Management Course in UCD on the 26<sup>th</sup> September 2002.
16. One Analyst is taking a 2 year part-time MSc in Molecular Pathology September 2002/2004 in DIT Kevin Street & Trinity College Dublin.
17. The Principal Analyst, one Senior Analyst and one Analyst attended a Total-Chrom Training Course held in the Medical Bureau of Road Safety on 3<sup>rd</sup> October 2002.
18. The Principal Analyst and one Analyst attended a Lion Intoxilyzer 6000 Users Group Meeting for two days on 17<sup>th</sup> & 18<sup>th</sup> October 2002 in the U.K.
19. Four Analysts, the Administrative Officer and one Executive Assistant attended a Manual Handling Course on at UCD, Belfield, Dublin on 11<sup>th</sup> November 2002.
20. The Principal Analyst, one Senior Analyst, and two Analysts attended the Restek GC – MS Seminar in the Tara Towers Hotel, Dublin on 14<sup>th</sup> November 2002.

### **STAFF APPOINTMENTS IN 2002**

During 2002 the Bureau appointed a locum Analyst to cover maternity leave and also a part time laboratory attendant to cover for three months. A part time Executive Assistant left the Bureau and was replaced by a temporary administrative person. There were no permanent appointments made during 2002.

### **BUREAU MEMBERSHIP AND MEETINGS**

During 2001 the Medical Bureau of Road Safety held four meetings. These meetings were held on the 12<sup>th</sup> March, 18<sup>th</sup> June, 24<sup>th</sup> September and 17<sup>th</sup> December 2001.

### **PROMPT PAYMENT OF ACCOUNTS ACT, 1997**

The Prompt Payment of Accounts Act came into operation on the 2<sup>nd</sup> January 1998, the Medical Bureau of Road Safety has come under the remit of the Act and since that time has complied with the terms of the Act. Under an agreement with University College Dublin, suppliers are paid in the first instance by the College which is then reimbursed by the Bureau. It is the policy of the Medical Bureau of Road Safety to ensure that all invoices are paid promptly. University College Dublin, as a public sector body, is required to comply with the requirements of the Act in relation to payments to suppliers for the supply of goods or services and therefore has very strict procedures in operation.

In the case of a small number of suppliers, when the Bureau receives an invoice it will issue a payment by cheque directly to the supplier. These controls in relation to



processing of invoices and disputes can only provide reasonable and not absolute assurance against material non-compliance with the Act.

\_\_\_\_\_  
Chairman

\_\_\_\_\_  
Director

\_\_\_\_\_  
Date: